

DETAILED ACTION

- Claims 1-6, 11-16, 18-23, 26-29, and 32-35 remain pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 11-16, 18-23, 26-29, and 32-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In reference to claim 1

Claim 1 recites the limitation "the downward set window size" in line 22. There is insufficient antecedent basis for this limitation in the claim. Furthermore, the steps of setting the window size control information in lines 17-29 are confusing and do not correspond to setting the window size control information. For example, in lines 22-23 "receiving data units corresponding to the downward set window size according to the window size downward setting information" does not make sense as a step of setting the window size control information when the window size control information has yet to be transmitted from the receiver to the transmitter as recited in lines 7-8.

- In reference to claim 11

Claim 11 recites the limitation "the window size control information" in lines 10, 14 and "the receiving window" in line 16. There is insufficient antecedent basis for these limitations in the claim.

Claim 11 recites "a receiving buffer" in lines 4-5 and "a receiving buffer" in line 16. It is unclear whether the "receiving buffer" of lines 4-5 is the same "receiving buffer" of line 16 or whether they are separate buffers.

Claim 11 recites "window size update information is transmitted... based on a **processing speed** by the receiving entity of data units stored in a receiving buffer" in lines 3-5 and "window size control information is set based on a **state of a receiving buffer** that corresponds to the receiving window" in lines 10-16. Lines 3-5 and 10-16 contradict each other. It is unclear whether the window size update information/window size control information is set based on a processing speed or a state of a receiving buffer.

- In reference to claim 22

Claim 11 recites the limitation "the receiving window" in line 18. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites "a receiving buffer" in lines 5 and "a receiving buffer" in line 18. It is unclear whether the "receiving buffer" of lines 5 is the same "receiving buffer" of line 18 or whether they are separate buffers.

- The dependent claims are rejected as being dependent on a rejected independent claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 11-16, 18-23, 26-29, and 32-35, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over ETSI TS 125 322 version 5.1.0 (2002-06) in view of Cao et al. (US 7085540)

- In reference to claim 1

In Figure 4.4 and 9.10, ETSI TS 125 322 teaches a data transfer controlling method in a radio system which transmits and receives data in an acknowledgement mode that includes receiving data units having serial numbers lying in a range of a receiving window, wherein the data units correspond to an initial window size (pg. 27 9.2.2.3), transmitting window size control information (pg. 33 9.2.2.11.3) from a receiver to a transmitter, and varying a transmitting window size by the transmitter according to the transmitted window size control information wherein the window size control information includes window size downward setting information wherein the value may be set to a minimum value of 1 (pg. 33 9.2.2.11.3) or window size upward setting information wherein value may be set to a maximum value of $2^{12} - 1$ (pg. 33 9.2.2.11.3)

and is transmitted simultaneously with acknowledgement information (pg. 32 9.2.2.11.2).

ETSI TS 125 322 does not explicitly teach setting window size control information based on a state of a receiving buffer that corresponds to the receiving window comprising checking whether more data units than a predetermined remain in a receiving buffer and setting the window size control information to a window size downward setting if there are more data units than a predetermined value remain in the receiving buffer; checking whether a predetermined margin for receiving the data units exists in the receiving buffer, when the predetermined margin does not exist in the receiving buffer, setting a window size maintaining information as the window size control information, and when the predetermined margin exists in the receiving buffer, setting a window size upward setting information as the window size control information.

In Figure 4, Cao et al. teaches a buffer **14** that controls a transmission rate from transmitter **2** to receiver **4** over radio interface **6** in order to avoid overflow of the buffer **14**. Flow control information is transmitted from the receiver **4** to the transmitter **2** based on a state of buffer **14**. Overflow control is achieved by varying a size of a window. A controller is provided which adjust the window indicated in a retransmission request dependent on how full the buffer **14** is. (column 3 lines 40 - column 4 line 15)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of ETSI TS 125 322 to include setting window size control information based on a state of a receiving buffer that corresponds to the receiving window comprising checking whether more data units than a predetermined

remain in a receiving buffer and setting the window size control information to a window size downward setting if there are more data units than a predetermined value remain in the receiving buffer; checking whether a predetermined margin for receiving the data units exists in the receiving buffer, when the predetermined margin does not exist in the receiving buffer, setting a window size maintaining information as the window size control information, and when the predetermined margin exists in the receiving buffer, setting a window size upward setting information as the window size control information as suggested by Cao et al. because it allows a transmission rate from the transmitter to the receiver to be varied or maintained based on how full a receiving buffer is in order to prevent buffer overflow.

- In reference to claim 2

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 4.4, ETSI TS 125 322 further teaches the transmitter is a network and the receiver is a terminal. (pg. 15 4.2.1.3.1.; 4.2.1.3.2)

- In reference to claim 3, 14, 27

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 9.10, ETSI TS 125 322 further teaches the window size control information is contained in status information to be transmitted. (pg. 33 9.2.2.11.3)

- In reference to claim 4, 26

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 9.10, ETSI TS 125 322 further teaches the window size control information is a window size super-field (SUFI). (pg. 33 9.2.2.11.3)

- In reference to claim 5, 16, 28-29

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 9.10, ETSI TS 125 322 further teaches the status information further includes an ACK SUFI. (pg 31 9.2.2.11)

- In reference to claim 6, 13, 23

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 9.10, ETSI TS 125 322 further teaches the receiver adjusts a receiving window size to be the same as the transmitting window size. (pg. 33 9.2.2.11.3)

- In reference to claim 11, 18-19, and 20-21

In Figure 4.4 and 9.10, ETSI TS 125 322 teaches a data transfer controlling method in a radio system which controls a flow of a radio link and includes an entity

operated in an acknowledgement mode, wherein window size update information (pg. 33 9.2.2.11.3) is transmitted from a receiving entity to a transmitting wherein acknowledgement information (pg. 32 9.2.2.11.2) is transmitted simultaneously with the window size control information, the acknowledgement information controlling transmission of additional data units from the transmitter to the receiver, transmission of the additional data units controlled based on window size update information (pg. 15 4.2.1.3.1 ; 4.2.1.3.2) and wherein the window size update information includes window size downward setting information wherein the value may be set to a minimum value of 1 (pg. 33 9.2.2.11.3) or window size upward setting information wherein value may be set to a maximum value of $2^{12} - 1$ (pg. 33 9.2.2.11.3).

ETSI TS 125 322 does not explicitly teach transmitting window size control information from a receiver to a transmitter based on a state of a receiving buffer or processing speed by the receiver of data units stored in a receiving buffer wherein the window size control information includes a window size upward setting information, window size maintaining information, and window size downward setting information.

In Figure 4, Cao et al. teaches a buffer **14** that controls a transmission rate from transmitter **2** to receiver **4** over radio interface **6** in order to avoid overflow of the buffer **14**. Flow control information is transmitted from the receiver **4** to the transmitter **2** based on a state of buffer **14**. Overflow control is achieved by varying a size of a window. A controller is provided which adjust the window indicated in a retransmission request dependent on how full the buffer **14** is. (column 3 lines 40 - column 4 line 15)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of ETSI TS 125 322 to include transmitting window size control information from a receiver to a transmitter based on a state of a receiving buffer or processing speed by the receiver of data units stored in a receiving buffer wherein the window size control information includes a window size upward setting information, window size maintaining information, and window size downward setting information as suggested by Cao et al. because it allows a transmission rate from the transmitter to the receiver to be varied or maintained based on how full a receiving buffer is in order to prevent buffer overflow.

- In reference to claim 12

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 4.4, ETSI TS 125 322 further teaches the entity is a radio link control (RLC). (pg. 15 4.2.1.3.1.; 4.2.1.3.2)

- In reference to claim 15

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 9.10, ETSI TS 125 322 further teaches the window size update information is included in a window size super-field (SUFI). (pg. 33 9.2.2.11.3)

- In reference to claim 22

In Figure 4.4 and 9.10, ETSI TS 125 322 teaches a data transfer controlling method in a radio data transfer of a mobile communication system that includes receiving atleast one protocol data unit (PDU) from a transmitting RLC entity; transmitting window size control (pg. 33 9.2.2.11.3) to the transmitting RLC entity and varying a transmitting window size according to the window size control information by the transmitting RLC entity and transmitting additional PDUs to be stored in a receiving buffer wherein acknowledgement information (pg. 32 9.2.2.11.2) is transmitted simultaneously with the window size control information, the acknowledgement information controlling transmission of additional PDUs based on the varied transmitting window (pg. 15 4.2.1.3.1.; 4.2.1.3.2) wherein the window size control information includes window size downward setting information wherein the value may be set to a minimum value of 1 (pg. 33 9.2.2.11.3) or window size upward setting information wherein value may be set to a maximum value of $2^{12}-1$ (pg. 33 9.2.2.11.3).

ETSI TS 125 322 does not teach checking a state of a receiving buffer or setting the window size control information level is set to one of window size upward setting information, window size maintaining information and window size downward setting information based on a state of a receiving buffer that corresponds to the receiving window.

In Figure 4, Cao et al. teaches a buffer **14** that controls a transmission rate from transmitter **2** to receiver **4** over radio interface **6** in order to avoid overflow of the buffer **14**. Flow control information is transmitted from the receiver **4** to the transmitter **2** based

on a state of buffer **14**. Overflow control is achieved by varying a size of a window. A controller is provided which adjust the window indicated in a retransmission request dependent on how full the buffer **14** is. (column 3 lines 40 - column 4 line 15)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of ETSI TS 125 322 to include checking a state of a receiving buffer or setting the window size control information level is set to one of window size upward setting information, window size maintaining information and window size downward setting information based on a state of a receiving buffer that corresponds to the receiving window as suggested by Cao et al. because it allows a transmission rate from the transmitter to the receiver to be varied or maintained based on how full a receiving buffer is in order to prevent buffer overflow.

- In reference to claim 32

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. ETSI TS 125 322 further teaches the acknowledgement information is included in a first super-field (pg. 32 9.2.2.11.2 and the window size control information is included in a second super-field (pg. 33 9.2.2.11.3) within a status PDU from the receiver to the transmitter. (pg. 15 4.2.1.3.1.; 4.2.1.3.2)

- In reference to claim 33

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. ETSI TS 125 322 further teaches the transmitting window size is varied to a size which allows previously received data stored in the receiving buffer to be arranged in sequence without said additional data being lost in the receiving buffer. (pg. 15 4.2.1.3.1; 4.2.1.3.2)

- In reference to claim 34

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. ETSI TS 125 322 further teaches adjusting a window size of the receiving buffer based on the window size control information. (pg. 36; 9.2.2.11.8)

- In reference to claim 35

The combination of ETSI TS 125 322 and Cao et al. teaches a system and method that covers substantially all limitations of the parent claim. ETSI TS 125 322 further teaches the varied window size of the receiving buffer (pg. 36 9.2.2.11.8) can be adjusted to be equal to the transmitting window size (pg. 33 9.2.2.11.3; 9.4) varied based on the window size control information.

Response to Arguments

Applicant's arguments with respect to the independent claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

- US 6430620

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN ROBERTS whose telephone number is (571)272-3095. The examiner can normally be reached on M-F 10:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DANIEL RYMAN can be reached on (571) 272-3152. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BSR
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